

# Creating Next-Generation Radio Digital Networks

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WD5IVD

This talk is not about emergency networking.  
A few thoughts on that at the end.



A few thoughts on what's at the end

The talk is not about emergency networking.

MD21AD

Greg Jones

Radio Digital Networks  
Creating Next-Generation



# Overview

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- Where are we now ?
- What Technologies can we draw from ?
- Some Final Thoughts







# Where are we now ?

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- Is there anything left from the 80's ?
  - Not much
- What happened in the 90's ?
  - APRS
  - HF Digital
  - Satellites
- What is happening now ?
  - Spread Spectrum, UWB
  - Increasing Processing Power
  - Internet Speed and Access
  - Commercial Competition



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  - Increasing Processing Power
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Where are we now ?



# Is Technology for us or against us ?

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- Sure does look like it is against us
- Why ?
  - Hardware development is quickly outpacing all but the professional or very serious amateur
  - Professionals that are amateurs are not in a position to be active in development
  - Software is the area that we can still compete with (PICs, Microcontrols, SDRs, Linux, Soudcards, FPGAs), but each takes special knowledge as well.



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Is Technology for me or against me?



# What are factors for Success

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- **Ease of Deployment**
- **Ease of Maintenance**
  - Both of these mean that one or a small group can get something started and maintain the technology.
- **Cutting Edge Consumer Technology**
  - APRS, Sound Cards, Linux, Internet, Computers
- **Allow people to talk to their friends (more then just local)**



(more than just local)

Allow people to talk to their friends

- APRS, Sound Cards, Linux, Internet, Computers

Cutting Edge Consumer Technology

technology

get something started and maintain the

Both of these mean that one or a small group can

Ease of Maintenance

Ease of Deployment

What are factors for Success



# Technologies that we can use?

- **Local Communications (What is local ?)**
  - What Speed ?
  - What Distance ?
- **Long Distance (what is long distance ?)**
  - The effort to maintain radio based long distance networking is monumental
  - Solutions have to be
    - maintainable
    - cost effective
    - reliable



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# Internet etc – Live with it

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- Amateur communications can provide some solutions, but depending on what you want to do there are serious limitations.
- APRS is successful because of I-Gates and Consumer Electronics
- The hobby is growing because of the availability of the Internet to disseminate information and software. It allows people to gather and communicate in a way that amateur radio has never been able to do.



Our client, Eagle, has never been able to do  
to gather and communicate in a way that  
information and software. It allows better  
availability of the Internet to disseminate  
The network is growing because of the  
and Consumer Electronics

APRS is successful because of its unique  
limitations

You want to do this in a secure  
secure solutions and networking can be  
Vibrant community can be created

What's Out There?



# Are we having fun ?

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- Do what allows you to have fun







# Why are people not doing more ?

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- A lot of the consumer electronics that people would like to deploy doesn't work well for the old paradigm.
- The cost of development and the effort to do a major project as an amateur group or individual is large.



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Why are people not going more?



# Emergency Networking

- I agree that what I am talking about here is not good for the emergency communications.
- Does it need to be ?
- Can it be ?
- What is emergency communications in this day and age and do we have technology already for it ?
- Training is more important then technology.



technology.

Is it more important then

technology already for it?

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What is emergency communications in

Can it be?

Does it need to be?

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## Emergency Networking